

CIEA 2006

Learning for sustainable action Program Promipac, Central America

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Integrated Pest Management Programme in Central America

Case Study for the CIEA 2006

The issue of pests and pesticides

Environmental disruption and poor management of crops have contributed to the outbreak of voracious and resistant pests. Producers are ill-informed about the biology and ecology of pests, which very often leads to them using pesticides as the sole management alternative, thus complicating the situation.

The Central American region is characterized by the excessive use of agrochemicals with the trend being an increase in use. Currently, an average of 1 to 1.5 Kg of agrochemicals per person and per year is used in the region. In El Salvador, over the last ten years, imports of agrochemicals have doubled. In Nicaragua, according to OPS statistics, there are 67,800 cases of poisoning every year, which entail 7.9 million dollars of public spending in medical care and a cost of 1.8 million dollars in environmental damage. These are considerable costs for developing countries' economies.

The Rural Context in Central America

Population in millions: El Salvador 6.7, Honduras 7, Nicaragua 5.5. Size in KM²: El Salvador 21,000, Nicaragua 129,494, Honduras 112,090. Between 40 to 50% of the population in Central America live in rural areas. The main challenge for the region is poverty reduction and boosting productivity without affecting the environment. In previous decades, coffee, bananas and timber were the main export items. Fruit, livestock, sugar cane and indigenous crops are now beginning to emerge to bolster a nascent but promising agro-industry. Central America recently signed a Free Trade Agreement (FTA) with the United States. The FTA is an unknown quantity – some sectors are optimistic but others, such as the agricultural sector, feel that subsidies and some asymmetries will have negative repercussions.

Given this context of globalized markets, Plant Protection is an issue of supreme importance. Proper management of pests increases the competitiveness of producers and agricultural businesses. Aspects relating to Health, Safety and Good Agricultural Practice (GAP) are becoming tools for regulating regional and international markets. Rules governing export of agricultural produce to the United States and Europe are, to a great extent, aspects of plant protection management.

The PROMIPAC Project

The Integrated Pest Management Programme in Central America (PROMIPAC) arose given the problems of pests and pesticides. It is a project of the Swiss Agency for Development and Cooperation and implemented by the Panamerican Agricultural School (Zamorano), whose goal is to help reduce poverty among Central American farming families through knowledge and application of Integrated Pest Management (IPM) on their farms, so that they can produce quality crops that find better markets.

The Programme works in Honduras, Nicaragua and El Salvador in four strategic areas: Extension, Education, Policies and Research; and three cross-cutting areas: Knowledge management, Gender, and Monitoring and Evaluation. In this case, for the CIEA, only the experiences in Education and Extension are included.

The Area of Education

The objectives sought are: 1) Contributing to the training in IPM of students and teachers, and 2) supporting integration of improved IPM educational programmes in the curriculum.

Agricultural education is facing several challenges in Central America, and to implement the actions collaboratively the Plant Health Education Commission of El Salvador (CEFES) and the National Commission for Agricultural Education (CNEA) in Nicaragua, were set up. These Commissions are made up of educational institutions at the intermediate (school-leaving certificate), technical and higher level (universities).

The CEFES and CNEA seek to find alternatives to improve the teaching-learning process in the plant health field, to produce quality crops in line with national and international market requirements, the intention being that students acquire skills and competencies via the learning by doing method that links theory and practice, through the demonstration and validation of teacher guided processes.

Actions carried out in Education

- Technical and methodological training for teachers and students. A series of courses were held with a range of content: agro-ecological analysis, biocontrol, production costs, drip irrigation, fertilizers, pesticides, safety, organization, business promotion, post-harvest, GAP and markets.
- Improving the curriculum in the area of Plant Protection. Eight academic programmes were improved. Teachers now teach with practical modules.
- Adaptation and implementation of the Field Schools (FFS) methodology in education. Teachers use the principles and practices of the methodology to improve the quality of education.
- In coordination with educational and extension institutions, a Network of Plant Health Diagnosis Agents has been set up, to drive the following initiatives: Plant Health Posts and Digital Imaging Distance Diagnosis, this in conjunction with Georgia University, USA and Almería University, Spain.
- Forums for analyzing and addressing issues of national importance. Forum on the situation of and prospects for Agricultural Education.
- Exchange of experiences between teachers from El Salvador, Nicaragua and Honduras.
- Production of educational material, manuals, and methodological guides for teaching agricultural practice in Integrated Pest Management in Nicaragua and El Salvador.

The Area of Extension

The objectives sought are:

1. Strengthening technical and methodological capacity in the transfer of IPM from partner institutions,
2. Supporting enhanced productivity with market-focussed IPM practices, and
3. Promoting equal opportunities in IPM-based production within the family.

To achieve these goals, strategic alliances were forged with some 60 institutions in Nicaragua, Honduras and El Salvador.

Extension actions

Technical training for extension workers and community leaders:

Technicians have been trained in managing vegetable crops (chilis/red peppers, tomatoes, cucumbers, onions, pipian, cabbages, loroco), industrial crops (sesame, hibiscus sabdariffa, linseed), staple grains (maize and kidney beans). There was also training in Good Agricultural Practice, small-scale greenhouses, soil health. As well as the technicians, producer leaders were trained (community extension workers) who support the training processes with producers from their own communities.

Promoting Sound Technologies:

A series of sound technologies were promoted, including bio control, with emphasis on the production and management of *Trichoderma*, mycorrhizas, *Phaselomyces*, Nuclear Polyhedrosis Virus (NPV) and parasitoid wasps.

Extension methodologies

1. Field Schools

The programme introduced into Central America the Farmer Field Schools (FFS). This is an adult education methodology developed by the FAO and currently used in Asia, Africa, South America, Central America and the

Caribbean. The methodology aims to make producers experts in managing their crops through a support programme with a facilitator.

2. Other extension methods

Radio broadcasting has been used to disseminate the technologies, concepts and practices of IPM to as many people as possible. In Nicaragua, together with the government, two radio stations and one university developed and broadcast 80 radio programmes directed at grain and vegetable producers in the north of the country.

Teaching how to produce for selling

In Nicaragua and EL Salvador, PROMIPAC has led the dissemination and applicability of Good Agricultural Practice with small and medium producers. The emphasis is on plant health management, the quality and safety of products. Other competitive aspects have to do with packaging and labelling (onions, sweet-corn and linseed). In El Salvador, together with CRS and PRODERNOR, a television campaign was developed to promote vegetables grown by a group of producers known as PHOC.

Fostering Gender Equity in the benefits of IPM

Gender indicators were defined. An IPM training plan was created, specifically targeting women linked by family to the beneficiary producers. For instance: pesticides in the home, managing household pests, kitchen gardens and GAP. Under Monitoring and Evaluation, the programme has short and medium-term indicators developed together with the producers and their families.

Results of the Project Partner Institutions

Education

In the Education area, 29 Centres for Agricultural Technical Education improved their curricula on plant protection and practical teaching methodologies that they develop with students. Some of these new curricula are being referred to the Ministry of Education.

83 teachers were trained and 2,197 in plant protection related issues.

The teachers produced more than 50 methodological guides on teaching IPM agricultural practice.

Debates/talks on the situation of agricultural education in the region have been supported, involving more than 15 partner institutions.

Educational fora for discussing IPM topics in the region, such as the CNEA and CEFES, boosted by the Programme, now have their own momentum.

Extension

During the last phase, 3,898 producers and 167 extension workers were trained in the use and management of IPM practices via the Farmer Field Schools methodology.

25% of those trained in IPM with the FFS methodology were women.

More than 60 institutions had their technical and methodological knowledge on IPM enhanced with the Field Schools methodology.

PROMIPAC has now become a facilitator in the region for IPM issues.

Production of educational material

Together with the partner institutions, documents and guides have been prepared on IPM in: cucurbit (squash), onions, tomatoes, chilli/red pepper, kidney beans and cucumber, and *jocote*. Management of diseases. Diagnosis.

Sustainability of the IPM topic among participants.

Producers' level of knowledge about IPM has increased by up to 40%. This new knowledge will remain in the communities.

More than half the experts and teachers trained have implemented FFS with their institutions. A third of the partner institutions have adopted the methodology.

In Nicaragua and El Salvador, the education and extension partner institutions have taken on board the IPM concepts and incorporated them into their POA's.

Newly graduated professionals coming from agricultural universities and colleges have a different approach to pest management. This paradigm shift will be passed on to the producers they deal with as extension workers.

The producers trained are innovating and generating IPM technologies. 75% of the producers trained in Field Schools are using IPM practices and have incorporated more elements of the agro-ecosystem into their decision-making on pest management for their crops.

Lessons learned

Connect achievements and goals with the market. The initial training parcels were very small. If production is not destined for the market, the training and the adoption of technologies will not be sustainable – these will only be applied as long as funds exist.

Emphasis must be on proven, cost-effective, efficient and available alternatives.

We have taught many things that were not applicable, and that was not sustainable. Only what is profitable can be sustainable.

Don't put all the eggs in one basket. The socio-political conditions in Central America are ever-changing. It is a good idea to work with different partners including, the government sector (national and local), NGO's, the educational sector and private enterprise.

Forge strategic alliances involving all stakeholders.

One can't do everything –others are working on the subject, try to find synergies and evolve with the surrounding priorities.

A good system for monitoring and evaluation, with their respective indicators and planned from the outset, is needed so as not to lose one's way.

Involve different levels in each area. Our success in the educational area was due to having primary, secondary and university education levels as part of the process.

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